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United States Patent [19]

Turner et al.

[11] Patent Number: **5,737,962**[45] Date of Patent: **Apr. 14, 1998**[54] **STEAM DELIVERY SYSTEM FOR STATIC TESTING OF GAS DRIVEN TORPEDOES**[75] Inventors: **Stephen E. Turner**, Newport; **Peter A. Roy**, Warwick, both of R.I.[73] Assignee: **The United States of America as represented by the Secretary of the Navy**, Washington, D.C.[21] Appl. No.: **682,877**[22] Filed: **Jul. 31, 1996**[51] Int. Cl.⁶ **G01M 19/00**[52] U.S. Cl. **73/167; 73/866.4**[58] Field of Search **73/167, 865.7, 73/865.6, 866.4**[56] **References Cited****U.S. PATENT DOCUMENTS**

| | | | |
|-----------|---------|--------------|------------|
| 1,131,341 | 3/1915 | Dieter | 137/505.13 |
| 1,134,039 | 3/1915 | Dieter | 73/167 X |
| 2,617,703 | 11/1952 | Minkler | 73/167 X |
| 2,649,750 | 8/1953 | Burgess, Jr. | 73/167 X |
| 2,807,164 | 4/1957 | Rumbough | 73/167 |
| 2,971,325 | 2/1961 | Gongwer | 60/211 |

| | | | |
|-----------|---------|----------|-----------|
| 3,109,401 | 11/1963 | Karig | 114/20.2 |
| 3,730,121 | 5/1973 | Supernal | 324/601 X |
| 3,752,429 | 8/1973 | Reed | 248/179.1 |
| 3,962,671 | 6/1976 | Jilling | 73/1 DV X |
| 4,680,934 | 7/1987 | Short | 60/652 |
| 4,756,264 | 7/1988 | Ewbert | 114/20.1 |
| 5,117,635 | 6/1992 | Blou | 60/668 |
| 5,592,850 | 1/1997 | Rowan | 73/865.6 |

Primary Examiner—Thomas P. Noland**Attorney, Agent, or Firm**—Michael J. McGowan; Robert W. Gauthier; Prithvi C. Lall[57] **ABSTRACT**

A torpedo is provided in a static test fixture where the engine, normally driven by the combustion of otto fuel is driven from a land based source of superheated steam. The torpedo's otto fuel engine is operated on steam and the need for a combustor and other fuel related components is eliminated. Such components are replaced by a steam line and a steam adapter. The torpedo's fuel tank is replaced with an extender section where the steam supply is connected and fed to the steam adapter. The need for storing combustible fuel and oxidizer agents on site is eliminated. The usual support and safety equipment required for handling of otto fuel and explosive devices are also eliminated.

7 Claims, 4 Drawing Sheets